

“How did I survive?” Online Teachers’ Describe Learning to Teach Students with Disabilities

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Introduction

Online learning has been viewed as a means to closing achievement gaps, improving student progress toward proficiency, increasing graduation rates, and improving the distribution of high-quality teachers for students, regardless of geography or distance (Patrick & Dawley, 2009; Rice, 2006). In 2015, an estimated 275,000 children enrolled in virtual charter schools in grades K-12, taking 3.3 million courses. The overall number of K-12 students enrolled in online courses in 2014-2015 has increased to approximately 2.7 million (Watson, Pape, Gemin, & Vashaw, 2015). On the other hand, little data is available about the percentage of these students who have disabilities. This expansion of online education might be viewed as a significant change in learning opportunities for students and a change for their parents as well.

The lack of information about the participation of students with disabilities is disconcerting for those diverse stakeholders considering implications for practice, research, professional development, preservice preparation, and policy. Molnar and his colleagues (2013) suggested that at least one in 10 online learners has a disability. Further, Miron (2016) named at-risk students, including those students with disabilities, as the fastest-growing segment of the online educational market, which includes fully online, supplemental, credit recovery, and blended learning.

Teaching practices can emerge from formal training based on technical activities that research demonstrates to be effective (Biesta, 2015). However, practices can also emerge from teachers’ personal practical knowledge, in which judgment is developed over time through experiences living alongside students (Clandinin, 2013; Fenstermacher & Richardson, 2005). While online teachers are expected to provide increasingly high-quality instruction to all students, the practices that teachers must enact in order to provide legally-guaranteed special education services to students with disabilities is not well understood. Research in traditional settings has produced some understandings about effective instructional practices, but online education has not been the focus of the same number of empirical studies. Moreover, instruction is but one element of service delivery to students. Unfortunately, little is known about service delivery for students with disabilities in online learning environments, a major part of which is instruction.

Even less is known about how teachers leverage their professional knowledge as they move from traditional classroom settings to online ones (Rice, 2006; Barbour, 2012).

The purpose of this study was to identify teachers working in fully online settings at a variety of grade levels who instruct students with disabilities and learn more about their practices with regards to service delivery for students with disabilities. In particular, we were interested in (1) what these teachers have learned about working with students with disabilities in online settings and (2) what these teachers have reported as their sources of their knowledge regarding the practices in which they feel competent.

Previous Literature on Teaching Students with Disabilities in Online Settings

In general, K-12 teacher preparation programs include some combination of coursework in general-education pedagogy, discipline-specific pedagogy, discipline-specific content knowledge, considerations when working with diverse learners, and classroom management (Brownell, Ross, Colón, & McCallum, 2005; Danielewicz, 2001; Schmidt et al., 2007). Additionally, prospective teachers are required to complete some sort of practical field experience before they may apply for licensure (National Council for Accreditation of Teacher Education [NCATE], 2008). This field experience component is considered by some to be the cornerstone of a traditional teacher education program and typically involves prospective teachers working on a part-time basis within brick-and-mortar education settings for a minimum of a semester and often an entire school year (Archambault & Kennedy, 2014; Darling-Hammond, 2006; Kennedy & Archambault, 2012). Making meaningful connections between pedagogy learned in the classroom and practice obtained through field experience is one of the major goals of an effective teacher education program (Darling-Hammond, 2006). Through the field experience, prospective teachers are expected to develop the knowledge, skills, and professional dispositions necessary to help all students learn (NCATE, 2008).

With regards to special education teacher preparation, Brownell and colleagues (2005) reviewed the available literature and found that special education teacher preparation programs tended to place a larger emphasis on direct instruction, inclusion, and behavior management; and less emphasis on subject matter pedagogy than general education preparation programs. Further, special education teacher preparation programs tended to focus more on general pedagogy (e.g., instructional methods, assessment, individualized education plans), unless they were integrated programs incorporating methods from both general education and special education.

In terms of this general instruction, several studies have evaluated instructional practices for students with disabilities. For example, Swanson (1999) reviewed the most effective approaches to instruction for students with a specific learning disabilities (SLD). Table 1 provides an overview of these approaches.

Table 1

Instructional Components of Effective Practice for Students with SLD

Instructional Component	Description
Task sequencing	Providing step-by-step prompts
Drill-repetition-practice	Daily testing, repeated practice, sequenced review
Segmentation	Breaking skills into parts for later synthesis
Directed questioning	Asking process or content questions
Control of task difficulty	Sequencing tasks from easy to difficult
Small group instruction	Instructing a group of five or fewer learners
Strategy cues	Reminding students to use strategies, think-aloud models
Supplemental interaction	Homework, reciprocal teaching
Technology integration	Utilizing computers, presentation media, etc.

In addition to information about effective instructional practices for students with disabilities, the literature reviewed for this study focused on (1) learning to teach online in general and (2) learning to teach students with disabilities online.

Learning to Teach Online

Research in the areas of teacher preparation in online pedagogy is very limited (Archambault & Kennedy, 2014). Although the role of teachers in online instruction differs significantly from that in a face-to-face instructional setting, recommendations from research conducted in these face-to-face settings is often used to inform online education standards. Currently, very few teacher preparation programs specifically focus on providing prospective teachers with the experiences needed to teach effectively in an online environment (Ferdig et al., 2009). A number of factors have contributed to this deficit. Kennedy and Archambault (2012) surveyed teacher education programs across the U.S. and found that a large number of respondents from these programs did not support online learning as a legitimate form of education. These respondents made statements describing traditional brick-and-mortar classroom settings as “real” and “actual” schools and expressed the notion that education takes place through interactions between human beings and via technology. Many respondents did not report knowing that K-12 online learning even existed. Other respondents indicated that they lacked necessary information to begin offering online teacher preparation experiences (Kennedy & Archambault, 2012).

Negative views. The negative attitudes toward online learning and the lack of knowledge of how to offer online teacher preparation experiences may both contribute to the paucity of teacher education programs actively preparing educators for careers in settings other than the traditional, brick-and-mortar classroom. At the time that the survey by Kennedy and Archambault (2012) was conducted, only 1.3% of teacher education programs addressed the need to prepare educators to teach in online settings, and just 13 of programs indicated that they were in the process of planning for such experiences to be available to prospective teachers.

Lack of teaching models. One of the biggest obstacles faced by teacher education programs is the general lack of available models on which to design courses and experiences that will support prospective and practicing teachers designing, delivering, and supporting students through virtual school experiences (Barbour, 2012; Barbour, 2016). While existing research provides a strong foundation for teachers in brick-and-mortar classroom settings, research related to online teacher preparation and professional development best practices remains scarce, with current studies often being program-specific or anecdotal in nature (DiPietro, Ferdig, Black, & Preston, 2008; Ferdig et al., 2009; Zweig et al., 2015). Even within the limited number of online teacher preparation programs that do exist, the extent that prospective and practicing teachers are receiving instruction in modifying course content and pedagogy for students with disabilities is unclear.

Limited field experiences. The lack of appropriate field experience opportunities is also quite apparent. Archambault and Kennedy (2014) call for online teacher preparation programs to provide prospective teachers with a “virtual apprenticeship” in lieu of, or in combination with, traditional field experiences. Despite this recommendation, very few programs offer online field experiences (Archambault & Kennedy, 2014; Archambault & Larson, 2015; Barbour, 2012; Ferdig et al., 2009). As a consequence, Rice and Dawley (2007) found that less than 40% of all online teachers in the United States reported receiving professional development before they began teaching online. Without this type of experience, future online teachers will only have face-to-face experiences to bring with them into the online classroom.

Even in the rare instances when teacher preparation programs offer prospective teachers the opportunity to gain field experience in online teaching prior to graduation, these programs typically still require prospective educators to also have face-to-face fieldwork experiences. For example, the University of Central Florida is noted in the literature as being one of the few teacher preparation programs in the United States to offer prospective educators the chance to gain online teaching opportunities prior to graduation through an internship opportunity available within the Florida Virtual School (FLVS) (Archambault & Kennedy, 2014). However, this program also requires prospective teachers to complete a face-to-face internship experience prior to graduation, regardless of whether they participated in the online internship experience (R. Hartshorne, personal communication, May 2, 2016). This program requirement substantiates the idea that face-to-face teaching experiences are a necessary component of online teacher preparation. Thus, even the certification requirements of online schools

themselves may indirectly require educators to have face-to-face teaching experience before providing an offer of employment.

Learning to Teach Students with Disabilities Online

Unfortunately, even less is known about the best practices of working with students with disabilities within an online environment. This lack of identified practices makes it difficult to design high-quality preparation programs for teachers. The fact that many teachers enter the online teaching environment with little, if any, preparation specific to online classrooms and are then faced with meeting the needs of students with disabilities is highly unfortunate. This situation is made even more dire with the realization that many online educational products that may be used by online educators have not been designed to meet the needs of students with disabilities (Greer, Rice, & Deshler, 2014; Smith, 2015).

However, some special education teacher educators do report an interest in incorporating online experiences into teacher preparation. Smith, Basham, Rice, and Carter (2015) surveyed special education teacher educators. They found that most teacher educators were trying to provide experiences building curriculum with technology, and these teachers had discussed building relationships with students and collaborating with parents online. However, the teacher educators in this survey did not report including online lesson delivery, online instructional strategies and assessment. They further report that they did not discuss legal aspects of online service delivery with prospective teachers. Moreover, Rice, Mellard, and Carter (2016) found similar patterns during focus group activity among participating special education teacher educators. Teacher educators were interested in promoting online education but hampered in incorporating online assessment and instruction because of lack of models and because orchestrating online teacher preparation *for* online teachers of students with disabilities required extensive coordination across departments, colleges, and with local schools.

Summary of Findings from Literature Review

Despite millions of K-12 students annually enrolling in online learning courses, teacher preparation for online learning environments has been largely ignored in the research literature. This omission is particularly evident with regards to students with disabilities. The literature suggests that neither prospective nor practicing online teachers are typically provided with the tools or knowledge they need to modify online learning environments for students with disabilities. This lack of preparation undercuts the intentions of the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004) which directs schools to provide K-12 students with disabilities with a free and appropriate public education (FAPE) in the Least Restrictive Environment (LRE) available to each student. More direct research with online teachers must be conducted in order to better understand how K-12 teachers working with students with disabilities and improving student outcomes in online environments are doing their work with what has been established as little preparation and support.

Methods and Strategies for Learning from Online Teachers

This study drew on phenomenology as an educational research design (van Manen, 1990). The primary data source were interviews conducted with participating teachers. Kvale (1996) argued that interviews are “the stage upon which knowledge is constructed through interaction of the interviewer and interviewee roles” (p. 127). Six teachers agreed to participate in the study. Table 2 provides descriptive information about the teachers who engaged in this knowledge sharing.

Table 2
Demographic Information for Participating Teachers

Pseudonym	Grade(s)	State	Subject	Years teaching online	Total years teaching
Nathan	9-12	Ohio	Math	2	2.5
Cheyenne	1, 4	Kansas	Gen Ed.	5	10
Hannah	K-1	Nevada	Gen Ed.	7	8
Alec	6	Ohio	Math	5	7
Kristen	9	Minnesota	English	8	15
Erin	6-12	Kansas	Math	8	12

Instrument Development

In giving advice about interviewing, van Manen (1990) suggested that interviewers need not ask an abundance of questions, but rather they should tailor their inquiries to the research question at hand. After an initial review of the literature, an online teacher interview protocol was developed. These questions are divided topically and appear as Table 3. The protocol included questions related to professional development, views of the field of online education, content delivery and student engagement, and family support. Questions regarding modifications and accommodations available to students with disabilities in online environments were also addressed.

Interviews were conducted between June and September 2016. Participants were contacted by email and asked to schedule a one-hour time slot in which to complete the interview with a member of the research team. Interviews were audio recorded and transcribed. Identifying information was coded during the transcribing process, and copies of completed transcriptions were sent to the teachers for review and to enlist their assistance in eliminating any additional identifying information that remained. Completed transcriptions were then analyzed for themes.

Table 3
Online Practicing Teachers Interview Protocol

Topic	Sample Questions
Teaching experience	<p>What is your total years of experience teaching online? What content domain do you teach?</p> <p>Did you teach in a traditional face-to-face classroom prior to your current assignment? Can you elaborate on these experiences?</p>
Preparation to teach students with disabilities online	<p>What, if any, prospective professional development or training experiences prepared you for working in an online environment?</p> <p>What could teacher preparation programs do to better prepare prospective educators to teach in an online environment?</p>
Teaching practices for students with disabilities	<p>How do you plan and design the curriculum for the content that you teach online? Do you have flexibility to adapt the curriculum to meet the needs of students with disabilities?</p> <p>What, if any, standards do you use to help you make instructional decisions?</p> <p>What methods do you use to engage your students in course content online? How do you maintain a professional connection or presence with your students through an online environment?</p> <p>What kinds of educational accommodations or modifications have you made for students with disabilities in an online course?</p> <p>If you could change one thing to more effectively meet the needs of students with disabilities in an online or blended environment, what would that be?</p> <p>What else do you think is important to know about improving the participation and success of students with disabilities in online courses?</p>

Professional development for teaching students with disabilities online	What types of professional development opportunities do you participate in?
Relationships with families and colleagues	How have you involved parents and other family members in the online learning curriculum?
	What advice would you give to other online teachers that are new to the experience?
	What are your perceptions about how other educators view online instruction?
Perceptions of the trends in online special education service delivery	What are the biggest changes you see happening within the field of online and blended education?

In addition to the interview protocol, a 12-question online survey was developed using Qualtrics. After initial consent was obtained, participants were sent a link to the Qualtrics survey and asked to complete it prior to taking part in the phone interview. Qualtrics survey items appear in Figure 1. Responses to these items were analyzed using SPSS.

Directions:

Please rate your level of agreement with the following statements.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither agree nor disagree
- 4 = Agree
- 5 = Strongly agree
- 6 = Don't know

1. I feel proficient in my online teaching role.
2. I feel confident in my ability to modify the online course(s) that I teach in order to meet the needs of all students, including students with disabilities.
3. I am able to utilize the principles of Universal Design for Learning (UDL) within my online classroom.
4. Online learning has the potential to be an effective mode of learning for all students, regardless of disability status.
5. I can build and maintain positive student-teacher relationships with students with disabilities online.
6. I feel confident in my ability to maintain student engagement throughout an online course.
7. I am able to promote interaction among my students within an online environment.
8. I understand how to measure student progress toward Individualized Education Program (IEP) goals within an online environment.
9. The blended/online classroom has altered the demands of the parent/adult family member.
10. I have a difficult time getting students with disabilities to complete the online course.
11. I am able to develop my own unique content for use in the online courses that I teach.
12. I am satisfied with the online teaching materials that I use.

Figure 1. Survey questions presented to interview respondents.

Data Analysis

The data analysis occurred in three phases. The first phase focused on the survey, the second dealt with the interviews, and the third brought these two sources together.

Survey. Frequency counts were calculated using SPSS. Table 4 highlights key survey findings. Although the responses are based on a small sample size, most participants agreed with most items on the survey—indicating general confidence in their roles as teachers of students with disabilities.

Table 4
Frequency Counts ($n = 6$) for Survey Item Responses

Abbreviated Survey Item	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree	Don't Know
1. Feeling of online teaching proficiency	0	0	0	1	5	0
2. Confidence in modifying courses	0	0	2	3	1	0
3. Utilizing UDL	0	0	0	4	0	2
4. Online learning's potential effectiveness	0	0	2	0	4	0
5. Presence of positive relationships	0	0	0	1	5	0
6. Confidence in maintaining student engagement	0	0	0	4	2	0
7. Promoting student interaction	0	0	1	1	4	0
8. Measuring IEP goal progress	0	0	0	3	3	0
9. Altering family demands	0	0	1	0	5	0
10. Difficulty with students with disabilities completing courses	1	3	2	0	0	0
11. Developing unique course content	1	0	1	4	0	0
12. Satisfaction with teaching materials	0	1	0	5	0	0

Interviews. The interviews underwent a coding process in which all of the data from the interviews were first grouped together by question. Then two researchers engaged in repeated re-readings of the data in this form. Next, one of the researchers made a preliminary coding document highlighting direct responses to what the teachers said they knew and how they indicated they had learned those things. In addition, the researcher marked specific strategies, programs, and technological devices that appeared in the transcripts. A second researcher moved through the data with the coding document and verified these identifications, adding additional items as they appeared. A reconciliation meeting was held to ensure that the coders agreed on the codes that had developed. Then together the researchers made a series of visual representations of key findings that appear as Figures 2, 3, 4. These appear in the findings section of this paper.

Merging Survey and Interview Data. In order to bring together understandings from both the survey and the interviews, responses from the survey were mapped on to responses from the interview data. Table 5 features survey responses and, for space considerations, one example of a sample interview response.

Table 5
Self-Report of Skills and Sample Interview Responses

Skill	Survey Response						Sample Interview Response(s)
	SD	D	N	A	SA	DK	
Modify course content			2	3	1		"...we do have freedom to modify - drop things that we don't like, or the one thing that we have the most freedom is how we deliver the instruction to the kids." -Hannah
Develop unique course content	1		1	4			"I don't know that we do [course development] so much because we have [our vendor] that writes our courses for us." -Cheyenne
Utilize principles of UDL				4		2	"...sometimes I will shorten assignments, sometimes I'll have voice-to-text software if reading is a problem, additional time... sometimes students have anxiety disorders so an accommodation would be not coming to class but just watching recordings so they don't have to interact that way." -Erin
Build and maintain student-teacher relationships				1	5		"...when we go on field trips... I want to be the one that they run up to and give a hug because we've built such a strong relationship just over the phone, or just over emails, or over the webcam talking." -Cheyenne
Maintain student engagement				4	2		"...warm-up activities have been something that have really taken new shape for me... it's my time to grab the students' attention, but also to show that 'this is going to actually matter.' [And] the questions are going to be applicable to the age group... it's going to be '60 blocks in Minecraft', or they're going to 'post 60 photos on Instagram'." -Nathan
Promote interaction among students			1	1	4		"...we get on our microphones; we get on our webcams... we have breakout rooms so if I want them to work in small groups they can do that." -Cheyenne
Understand measurement of student progress toward IEP goals				3	3		"I always base [accommodations and modifications] off of their IEPs or 504s." -Alec

*SD = Strongly Disagree; D = Disagree; N = Neither Agree nor Disagree; A = Agree; SA = Strongly Agree; DK = Don't Know

Findings

Findings from this study are divided into two sections, based on the original research questions:

1) *What have these teachers learned about working with students with disabilities in online settings?* and (2) *What do these teachers report as their sources of knowledge regarding the practices with which they feel competent?*

The first section focuses on what teachers have learned about working with students with disabilities in an online setting. The second section focuses on how they learned what they learned. These findings are reported in the next sections.

Teachers' knowledge about working with students with disabilities

The online teachers included in our sample reported on a variety of knowledge related to working with students with disabilities in an online environment. When asked about the educational accommodations and modifications used in their online courses, our participants described a variety of methods available to assist their students in accessing course content and completing coursework in an online environment. Table 6 summarizes this knowledge and the examples of practices the teachers described.

Table 6
Knowledge Categories and Practices of Online Teachers of Students with Disabilities

Knowledge Category	Example Practices
Curriculum	<ul style="list-style-type: none">• Following a script or lesson plan• Removing assessment questions or tasks• Monitoring student progress through the course• Directing students to supplemental resources
Instructional groupings	<ul style="list-style-type: none">• Asynchronous lessons• Small group• One-on-one• Optional synchronous lessons
Parent Communication	<ul style="list-style-type: none">• Calling parents regularly• Emailing parents regularly• Explaining concepts to parents• Supporting parents' use of technology
Technological Supports	<ul style="list-style-type: none">• Phone• Webcam• Text messaging• Email• Chatrooms• Text-to-speech• White board• Computer screen sharing• Online polls

-
- Music
 - Microphone
 - Chatroom
 - Videos
 - Manipulatives
 - Drawing tools
 - Pointer tools
-

Curriculum

Teachers reported that they were not in charge of the curriculum in their schools. Instead, the lessons were developed by a team in the school or purchased from an outside vendor. Their job, as they described it to us, was to enact this pre-packaged curriculum as a kind of script. As one participant, Erin, stated: “I don’t plan or design any curriculum ... it’s all given to us and you can’t modify it.” For students with disabilities, some of the teachers were sometimes able to take out assessment questions or reduce the task load. But more often than not, the teachers monitored students’ progress through the course and provided encouragement and offered re-teaching for low performance. They also directed students, particularly students with disabilities, to supplemental resources. As Kristen told us:

[M]ostly when I am making modifications I am trying to add scaffolding, either for my whole class or for subsets of my class. So they might be given a prompt but not be given any guidance within the curriculum to develop that essay. So I might provide them with a graphic organizer and an outline tool for their writing to help them accomplish the objective. (Interview, 7/13/2016, lines 101-105)

Instructional Groupings

The teachers also reported using a variety of instructional groupings as a strategy for meeting the needs of students with disabilities. These groupings varied from the asynchronous lessons that students could engage with at their own pace to small group lessons where students came together for additional instruction. For example, Alec reported:

[O]utside of that hour to two hours a day where I’m providing instruction to my students, the majority of the rest of my time is analyzing data about the students and reaching out to students I’m seeing through the data are struggling on certain content, and then doing either one-on-one intervention work with them or inviting them to small group intervention sessions. (Interview, 6/29/2016, lines 151-154)

Some of the teachers held these small groups and required students to attend, some only required struggling students to attend, and some held these groups as an entirely voluntary activity. While some teachers intentionally grouped students by skill deficit, most of the teachers did not engage in strategic groupings. Even so, teachers did report that students with disabilities had access to instruction in groups of varying sizes.

Parent Communication

The teachers reported frequent communication with parents. As one teacher, Hannah, verbalized: “...I get to spend time with the parents... and so because your time is 30 minutes dedicated to this family, you really do get to know the whole unit, and it’s really great.” Indeed,

the teachers were required to notify parents when students failed to log on for a certain period of time, when performance on an assignment was low, and they were required to make periodic phone calls to report progress generally. his communication usually came in the form of a phone call, but teachers also emailed parents and sent text messages. In addition, the teachers reported that for students with disabilities, they make additional efforts to make contact more frequently, they put more effort into explaining concepts to parents so that the parent can assist the child, and they support parents in troubleshooting technology and learning skills such as attaching documents to emails.

Technological Support

The teachers also described a diverse range of electronic tools that they used in their online classrooms. The tools are listed in Table 6. Teachers reported a wide range of types of tools. Hannah spoke with us regarding the impact of technology on student engagement in her online classroom:

Letting them use the drawing tools, or letting them use the pointer tool, or even turning on their microphone was really fun and ... I found a lot more buy-in, and I just found them to be more engaged in the online lessons in general. (Interview, 6/23/2016, lines 90-93)

The teachers knew how to use basic tools and functions, such as webcams and email, but they also described using programs like online polls and drawing tools. These tools were referenced as instructional supports rather than assistive technology for students with disabilities, meaning that they were used with students regardless of disability status. Even so, the technology supports were regarded as being helpful for supporting students with various exceptionalities.

Teachers' Sources of Knowledge about Working with Students with Disabilities

All of the teachers indicated that they felt proficient in their online teaching roles, confident in their ability to maintain student engagement in an online environment, and capable of building and maintaining positive student-teacher relationships with students with disabilities online. This finding was interesting considering they also lamented their lack of preparation. The contributing sources to these understandings appear in Figure 2.

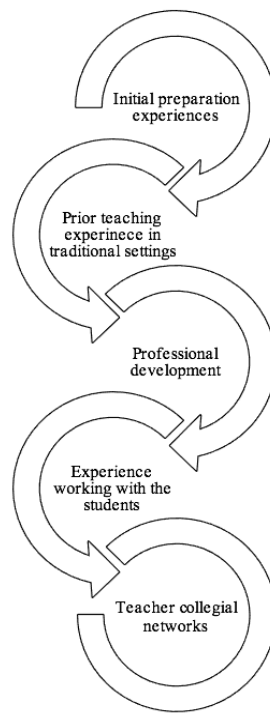


Figure 2. Teachers’ reported sources of knowledge for working with students with disabilities online.

Initial Preparation Experiences

When prompted to discuss any prospective preparation received prior to working in the online environment, whether it was obtained through a postsecondary institution or through available professional development opportunities, all of our teachers responded that they had received no direct preparation for teaching in the online environment. As Erin told us: “I had zero preparation. Like it was basically: ‘Here’s your computer.’” Cheyenne described the initial online teaching experience as “trial by fire,” while Hannah stated: “Honestly, I didn’t know what I was getting into prior to this job.” Several of the teachers that we spoke with discussed taking Technology in the Classroom courses within the context of their teacher preparation programs, but the majority of these participants reported that the technology covered in these courses seemed targeted for use in a brick-and-mortar setting. Nathan, however, did tell us that although the technology course he had taken “was not dedicated to online learning at all,” it was still a positive training experience. Keeping this report in mind, an important note is that Nathan also maintained that he felt the need to “bridge the gap” between the content presented in the course and the application of that content in a fully online setting.

Prior Teaching Experiences in Traditional Settings

“Bridging the gap” between brick-and-mortar practice and fully online teaching was a common theme reported throughout the study. All of the teachers reported experience teaching in brick-and-mortar settings prior to their foray into teaching online, although fewer had

experience teaching students with disabilities in face-to-face settings. These brick-and-mortar experiences were frequently referenced as a knowledge source for practicing online teachers, alongside the need to modify these traditional practices in order to fit the online environment. Typically, the participants that we spoke with highlighted the differences between their current positions in online environments and their previous experiences in face-to-face settings. For example, Kristen reported:

We have dedicated time when we are responsible for being with students, but if I'm talking to a student and I need help modifying something, I can send an instant message to the case manager, and the case manager can conference in, and we can work on it together right on the spot, which is pretty amazing. I hardly ever, in my brick-and-mortar job, communicated directly with special education teachers for making modifications and accommodations. I would get a copy of the student's IEP, and they would say, "Let me know if you need anything!"—except nobody has any time to talk. I go to every IEP meeting for every one of my students because they can happen during the work day – they're not after school. (Interview, 7/13/2016, lines 231-242)

Even while differences between teaching in a brick-and-mortar versus an online school were highlighted at times, these differences were also capitalized on. The teachers we spoke with also discussed how their experiences in brick-and-mortar settings allowed them to conceptualize the ways in which certain techniques might work in that environment, and then modify those techniques to work online. For example, Hannah reported: "Now I can go to a conference, and I can see what they're doing, and I can spin it around in my head and think, 'Okay, how could I make this work in my environment?' Although the self-report information is unclear as to whether or not brick-and-mortar teaching experience is necessary to have prior to working in an online classroom, for our teachers these experiences seemed to be a positive resource for preparing them for the online environments.

Professional Development

Professional development opportunities provided by employers were also referenced as a source of professional knowledge for online educators. Although all of our teachers reported a lack of prospective preparation opportunities related specifically to teaching in a fully online environment, post-hire professional development was discussed with each participant at length. Hannah told us:

[My online school is] always trying to make sure we're doing what we should be, and you know, using the latest and greatest methods and being really innovative to support our families, and so they're really open for us to go out and seek out opportunities for professional development, and I appreciate that. (Interview, 6/23/2016, lines 349-351)

Teachers that we spoke to reported receiving professional development opportunities, including: monthly and bi-monthly live webinar events, periodic on-site trainings, professional learning communities, in-person discussion-based meetings, master's coursework reimbursement, and national conference attendance.

Our teachers also reported on the professional knowledge that they had drawn from standards and guidelines used for instructional decision making. The standards that they discussed using included individual state teaching standards, Common Core State Standards (CCSS), and

standards specific to their online school. Interestingly, none of the teachers that we interviewed reported the use of teaching standards more tailored to online education, such as the International Society for Technology in Education (ISTE) standards or the International Association for K-12 Online Learning (iNACOL) standards, to guide them in making instructional decisions. In fact, some of the teachers that we interviewed were not aware that these online teaching standards existed at all. For example, when asked directly about these standards Cheyenne stated:

I saw ISTE [on the interview document] and I thought: ‘I don’t know what that is’. So I looked it up—like I feel, ‘Why don’t I know what this is?’ It makes me feel really awful. So I looked them up... and it’s something that I absolutely am going to be spending some time looking into... (Interview, 6/16/2016, lines 402-405)

On the whole, the teachers in our study reported that each of their school’s curricula were already “built around” and aligned to various state and national standards, and did not express concern regarding the need for modification of these standards to better fit teaching in an online environment.

Experience Working with the Students

The teachers in this study also referenced direct online teaching experience as a unique source of practical knowledge. Despite the fact that all of the teachers that we interviewed had teaching experience in brick-and-mortar settings, the idea that certain knowledge can be gained only from working in an online school was reported. For example, Cheyenne reported:

I know when I first started, a lot of my colleagues that I worked with previously just kind of thought, ‘What are you doing...?’ You know, ‘How can this even be a real thing?’ ...‘How can you teach kindergarten online?’ And before that I thought the same thing. Even going into it, I don’t know that I really knew how I could do that. But as the years have passed, you know, I’ve been able to talk in detail about what I do— ‘Here are the resources that I have.’ (Interview, 6/16/2016, lines 323-328)

A lack of knowledge of the online world prior to teaching online was a theme brought up among participants.

As stated above, not all of the teachers that we interviewed had prior experiences teaching students with disabilities before entering an online setting. Therefore, knowledge of providing accommodations and modifications and measuring student progress toward IEP goals in an online setting must have arisen from a source other than a brick-and-mortar classroom for those teachers that did not have previous face-to-face experiences with these students. In discussing his experiences, Alec reported that although he did have experience interacting with students with disabilities in a face-to-face environment, it had never been in a one-on-one or small group setting. He stated:

I’d say I spend a lot more time working with students with special needs [online]. In my traditional brick-and-mortar building, when students were getting intervention lessons or small group instruction, they were often being pulled into a classroom with an intervention specialist who facilitated those. Those are still offered in our school, but we emphasize much more direct contact and one-on-one attention to these students in our

online environment than I *ever* saw in a brick-and-mortar building. (Interview, 6/29/2016, lines 171-175)

All of the teachers in our study discussed numerous professional experiences working with students with disabilities in an online environment.

Teacher Collegial Networks

The teachers also discussed a significant need to communicate with colleagues specifically within the field of K-12 online learning. Whether it be with coworkers, mentors, or supervisors, the importance of collaboration was reported. When we asked what advice they would give to online teachers that are new to the profession, several of the teachers in our study brought up the necessity of relying on others in the field for support and guidance. For example, Cheyenne offered:

There are so many things that we can learn from professional development ...but putting into practice, getting that transfer, isn't always the easiest thing. And so, if you talk to your colleagues that are doing it with you, and they're trying to figure out the best way to implement it too, working together —why reinvent the wheel if someone else has found a way to really engage these kids? So yeah, absolutely work with your colleagues. (Interview, 6/16/2016, lines 132-138)

The teachers also discussed the importance of working with a mentor when first entering the field in order to assist in tackling the steep learning curve while transitioning to a fully online teaching position.

Discussion

Our findings indicate that these teachers placed great importance on their early teaching experiences in traditional settings and that they were reliant on colleagues and professional development in their current schools in order to continue to improve their skills in teaching students with disabilities. Although none of the teachers in this study reported receiving formal preparation specifically related to online education prior to teaching online, all participants reported feeling proficient in their role as an online educator, capable of building and maintaining positive student-teacher interactions with students with disabilities, and confident in their ability to maintain student engagement throughout the courses that they teach. Future research should focus on the different types of post-employment professional development and the degree to which these opportunities are more or less beneficial to online educators.

Implications

[Just] be patient. ...Everyone has those experiences in life that you look back and go 'How did I survive that?' If you stick with it you will have that same experience and same feeling of accomplishment, eventually. (Erin, Interview, 8/18/2016, lines 129-130).

Teaching in a fully online setting, although at times uniquely challenging, can also be a positive and increasingly necessary experience for educators. As more and more students with disabilities look to online environments for their education, teachers in these settings need to be acknowledged and supported in their work.

Providing stronger support to teachers in their work with students with disabilities will require a number of different approaches. These recommendations appear as Figure 4. Each of these recommendations will be discussed in this section.

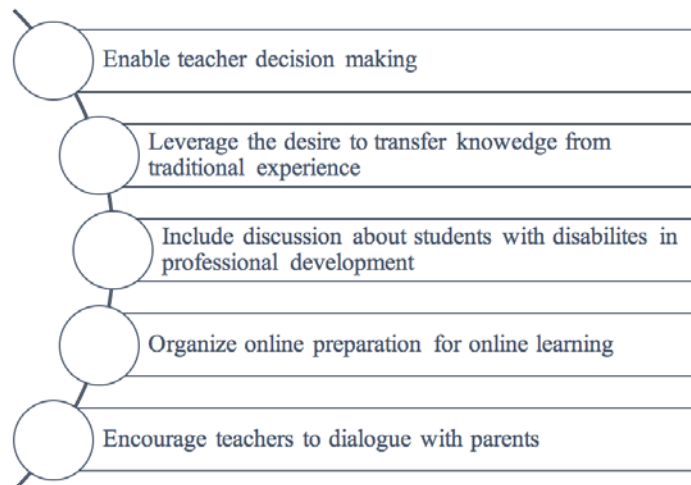


Figure 4. Recommendations for supporting online teachers of students with disabilities.

Enable teacher decision making

Teachers in this study felt that they did not have much power over the curriculum in their schools. Although they understood these circumstances to be an attempt by their employer to standardize the learning experience, they wished that they had some chance to collaborate about lesson content, and they wished that they could have more authority to add, remove, and modify lessons for students with disabilities. In their view, supporting teachers in their work with students with disabilities will require schools to entrust more decision-making about curriculum to them.

Leverage the desire to transfer knowledge from the traditional experience

These teachers drew heavily on their teaching experiences from the traditional setting as they moved online. Only the teacher without much traditional experience did not actively look for ways to generalize or transfer professional knowledge from one context to another. Knowing that the current online teaching force is largely coming to virtual schools from traditional schools, it seems optimal for professional developers and administrators to acknowledge and facilitate teachers' transfer of knowledge, rather than expect teachers to do it on their own.

Include discussion about students with disabilities in professional development

Teachers in these schools survived their induction into online teaching by virtue of their professional development in many cases. This professional development was most helpful when it was provided at the school level since state and national conferences are not currently catering to online teaching contexts, according to the teachers. That said, professional

development within the school is the place where teachers might be most profitably prepared and supported in developing understandings about students with disabilities. Based on the findings of this study, school-level professional development might be aimed at (1) determining the need for and implementing instructional accommodations, (2) maximizing the time spent in small group and one-on-one instruction, (3) supporting parents of students with disabilities, and (4) using technologies to accommodate disabilities.

Organize online preparation for online learning

The fact that each of these teachers felt unprepared or underprepared for online teaching is unfortunate. It is also unfortunate that they feel largely self-taught with reference to students with disabilities because, as the findings suggest, they cannot describe how to integrate curriculum into a disability plan in meaningful ways, and they cannot use many of Swanson's (1999) instructional components with any level of real sophistication. The organization of initial preparation must, as Archambault and Kennedy (2014) have already argued, include both coursework and field experience in online learning. Further, these experiences must also include chances to interact with students with disabilities.

Encourage teachers to dialogue with parents

The teachers in this study reported high levels of contact with parents. Even so, they did not describe contact with parents related to instruction as being more than solving the immediate problem of getting a child to log on to a course or helping with technological issues. Since it is possible parents are spending many hours working with their children with disabilities in online coursework, and these parents likely understand the child's disability very well, they might make ready partners for learning how to serve individual children more effectively.

Limitations

Since this work took a qualitative approach, our design also naturally included a low sample size. Therefore, while the purpose of this research was not to make a claim to broad generalization, we do acknowledge the particularity of these findings. The information gathered in this study introduces and extends findings regarding the sources from which online teachers gain pedagogical knowledge of working with students with disabilities, as well as how this knowledge is put into practice within the online environment, with implications for future teacher preparation and support efforts outlined. We invite additional studies in other virtual schools, across virtual schools in various states, and studies that gather information among states to establish a more solid research base around what teachers are learning about working with students with disabilities and how they are acquiring that information.

Conclusion

This study asked six fully online teachers of different grade and subject matter concentrations to describe the strategies they used to meet the needs of students with disabilities and to name the contexts in which they learned this information. The teachers described a number of technology and relational tools they use to serve their students that went beyond legal

accommodation, despite receive little to no preparation to work with students with disabilities online before taking a position as an online teacher. The teachers, however, were unable to describe specialized instructional practices for students with disabilities, and they did not name particular policies or legalities specific to students with disabilities that affected their work.

Further, the teachers in this study credited their own attempts to transfer understandings from teaching in traditional settings to virtual settings and professional development provided by their schools as a primary sources of information. However, they wish they had access to more professional development to enable them to share their knowledge with others. In addition, these teachers may benefit from targeted support that brings forward relevant traditional experience and builds on it for the online context. Finally, teacher preparation programs might consider ways in which partnering and maintaining research relationships with online schools will bring more prepared teachers to online learning and thus improve service delivery.

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